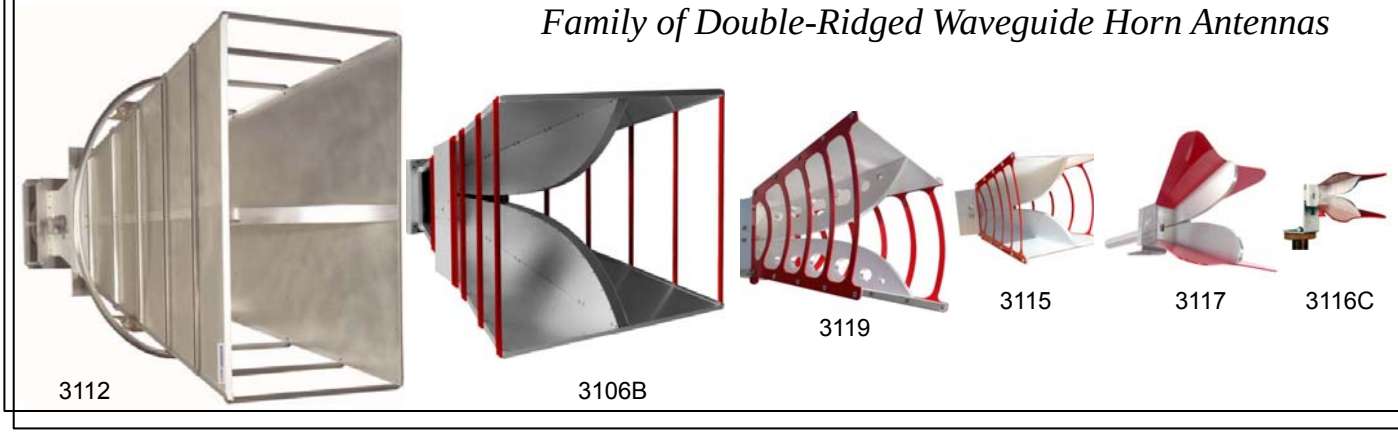
ETS·LINDGREN
An ESCO Technologies Company

EMC Antennas

Double-Ridged Waveguide Horn Antennas

Models 3112, 3106B, 3119, 3115, 3117, 3116C



The ETS-Lindgren family of Double-Ridged Waveguide Horn Antennas consists of linearly polarized broadband antennas ranging in frequency from 100 MHz to 40 GHz. These antennas were designed and built specifically from EMI measurements and specifications compliance testing. However, they can also be used for antenna gain, pattern measurement, surveillance, automotive and military EMC immunity applications.

Electrical Specifications

Model	3112	3106B	3119	3115	3117	3116C
Frequency Range	100MHz - 1GHz	200MHz - 2.5GHz	400MHz - 6GHz	750MHz - 18GHz	1GHz - 18GHz	10GHz - 40GHz
VSWR Ratio (Average)	< 1.6:1	< 1.6:1	< 3.5:1	< 5:1	< 3.5:1 max. < 2.5:1 max. above 1.5GHz	< 2.5:1
Max. Continuous Power	800 W	800 W	800 W	750W	300W	20W at 40GHz 40W at 10GHz
Peak Power	1.5 kW Type N, female connector 2.5 kW CW EIA 1 ⅝ in. flange connector	1600W	2500W	500W	400W	200W
Impedance (Nominal)	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω	50 Ω
Connector	Type N, female EIA 1 ⅝ in. flange	Type N, female	Type N, female	Type N, female	Type N, female	Type K, female
Front-to-Back Ratio	20 dB	20 dB	20 dB	20 dB	>6.42 dB at 1GHz >12.08 dB at 2GHz >20 dB at 3-18GHz	20 dB
Cross Polarization	20 dB minimum	20 dB minimum	20 dB minimum	20 dB minimum	20 dB at 3-18GHz	20 dB minimum

Physical Specifications

Model	3112	3106B	3119	3115	3117	3116C
Width	203.2 cm	93.3	48.8	24.4	17.5	10.8
Depth	182.0 cm	97.8	40.0	27.9	17.5 + 15.5	w/Stinger 25.7cm w/bracket 13.0cm
Height	139.7 cm	72.9	31.4	15.9	15.5	w/Stinger 6.4cm w/bracket 8.9cm
Approximate Weight	86.1 kg	11.8	7.4	1.8	1.13	w/Stinger 0.334kg w/bracket 0.2kg

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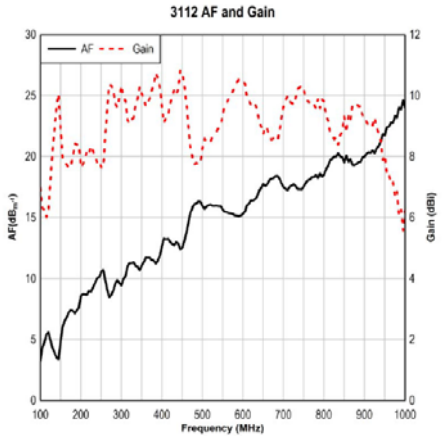
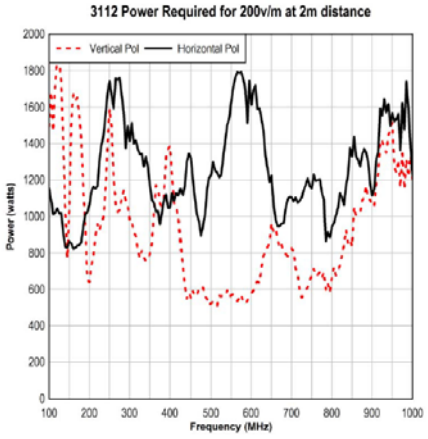
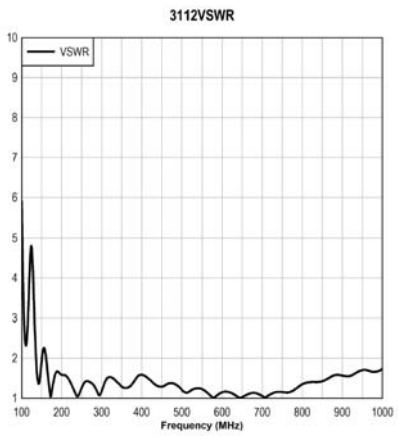
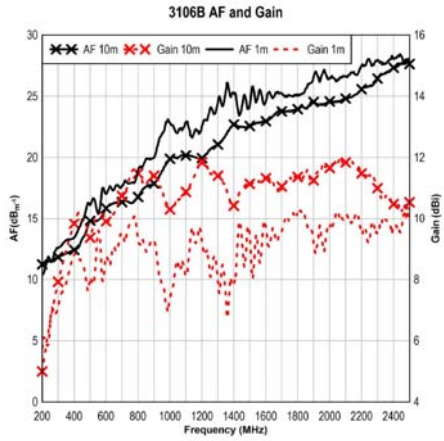
Model 3112

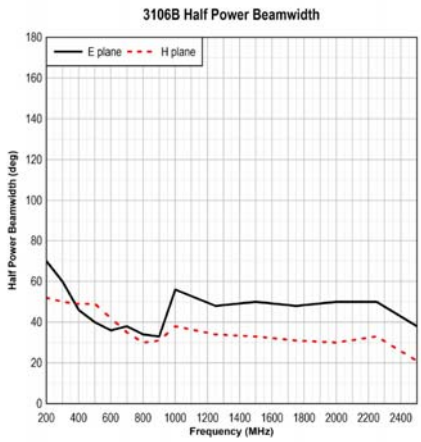


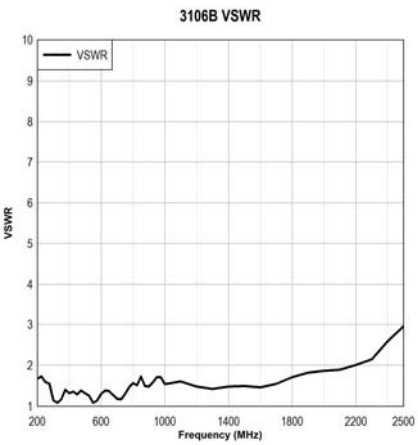




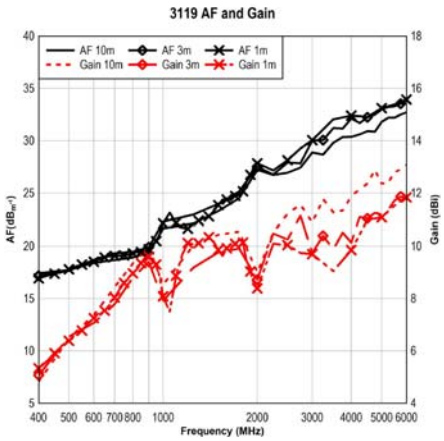
Model 3106B

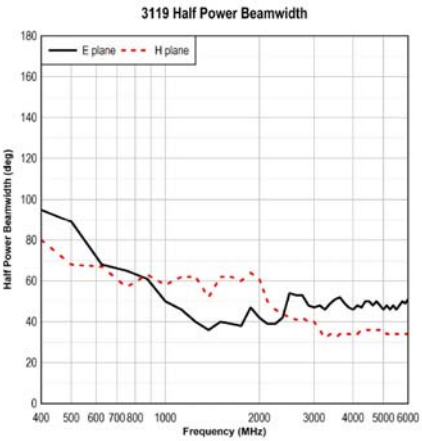


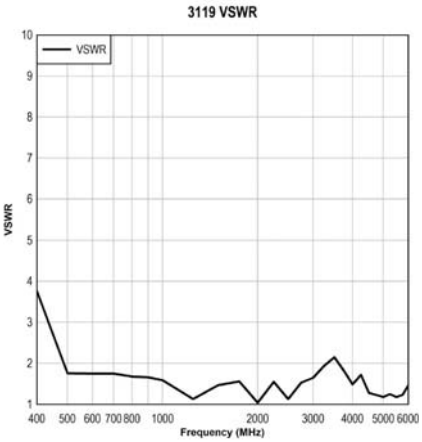




Model 3119







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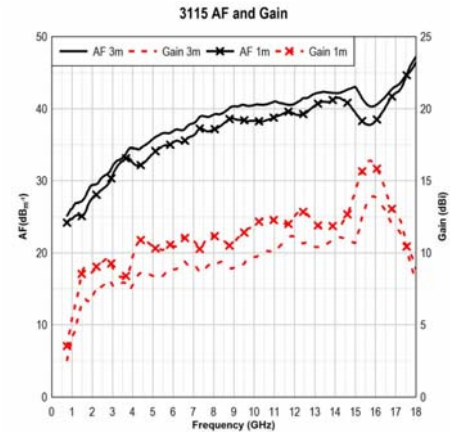
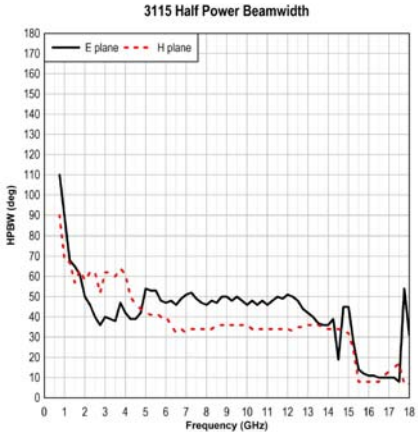
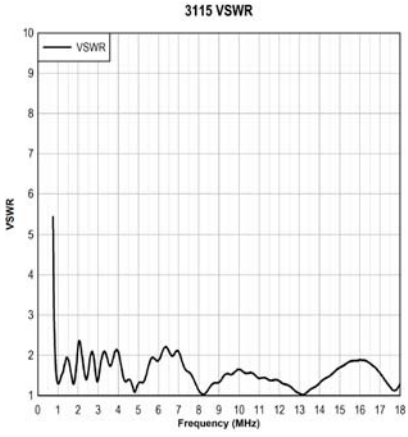
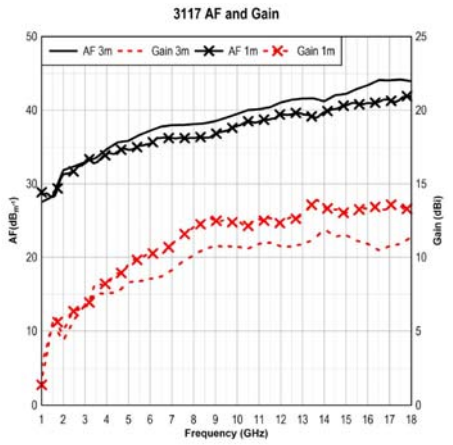
Model 3115

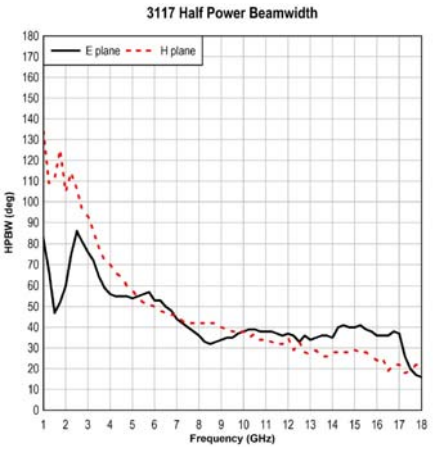


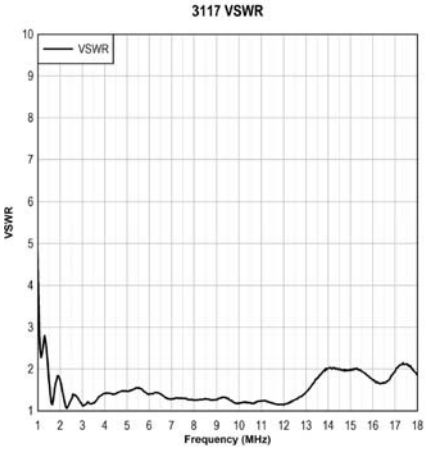




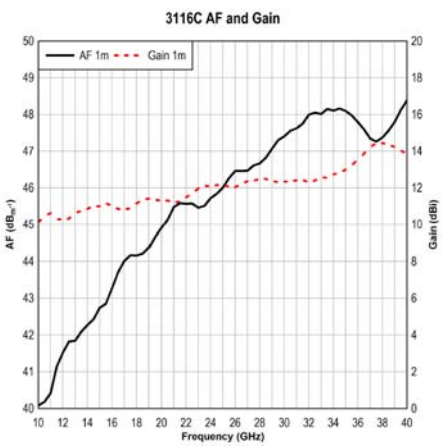
Model 3117

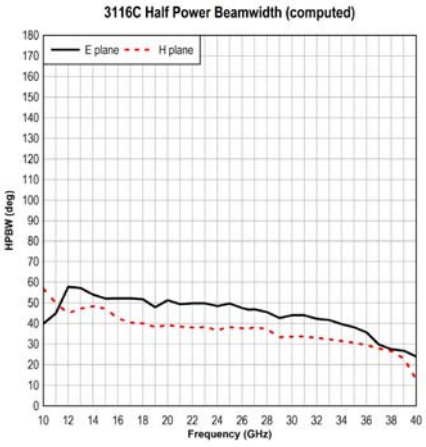


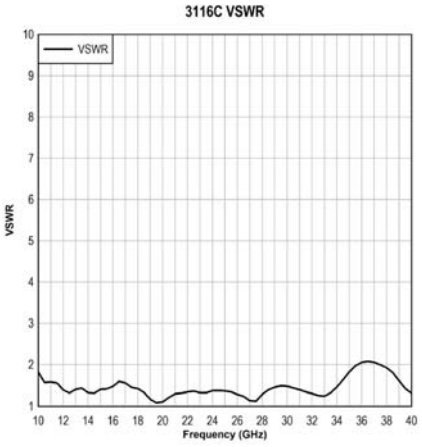




Model 3116C







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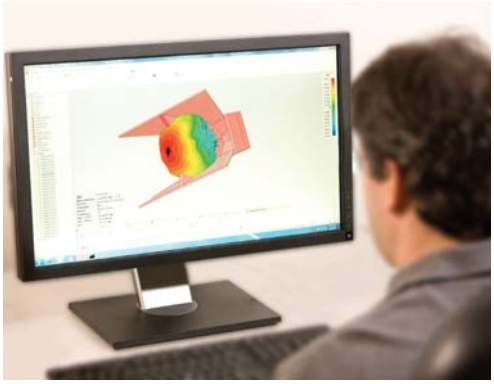
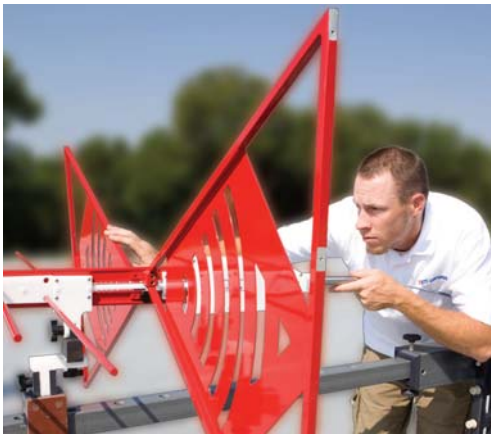
Advance Computer Modeling

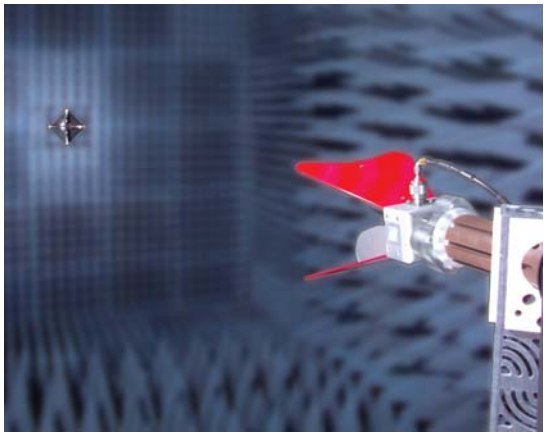
We use state of the art computer modeling to design our antennas. A few of the methods used are Finite Difference Time Domain (FDTD), Finite Element Method (FEM) and Method of Moments (MoM).
After RF modeling is completed, mechanical 3D CAD software is used to help build prototypes for testing.
Measured results often match or outperform predicted results. While computers are an important part of the process, we also rely on a staff of experienced RF engineers to guide development. These experts are knowledgeable about current standards and customer requirements, to assure that our antennas meet the needs of our customers.

Precision Manufacturing

For over 40 years we have been developing and manufacturing precision-built antennas. Our capabilities include precise machining of aluminum, brass, steel and dielectric materials such as Teflon™, Kydex™, polycarbonate, Nylon and fiberglass.
Our end-to-end manufacturing capability means we control critical processes that ensure compliance with quality standards.
Our commitment to excellence is demonstrated by our certification as an ISO 9001:2008 compliant manufacturer in our Beijing, Cedar Park, and Eura facilities.







In-House Antenna Calibration

ETS-Lindgren's calibration lab is accredited by the American Association of Laboratory Accreditation (A2LA).
To increase the precision and accuracy of our calibrations, we use high-end vector network analyzers wherever possible rather than the typical combination of signal/tracking generator/spectrum analyzer. Network analyzers provide superior linearity, stability, and signal rejection compared to a typical signal generator/spectrum analyzer combination, and provide more frequency points per trace than most spectrum analyzers. The benefit is greater measurement accuracy, less interpolation error, and lower uncertainty values.
Our lab includes an 80 m x 50 m solid-metal outdoor ground plane for calibrating antennas, fully anechoic rectangular and tapered chambers for probe calibrations and cell phone and antenna pattern measurements, GTEM and TEM cells for probe calibrations, and other test fixtures, along with a full complement of NIST traceable instrumentation.

Measured Data

At ETS-Lindgren, we know that low measurement uncertainty values and repeatable results can't be made with unreliable data. That is why we supply actual measured data with our antennas, made with NIST traceable calibrated instruments, in our A2LA antenna calibration lab. Additionally, we publish data for each model on our website, www.ets-lindgren.com.

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